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July 2, 2009
HAND DELIVERED

Mr. John R. Baza
Director
Utah Division of Oil, Gas and Mining
1594 West North Temple
Salt Lake City, Utah

RE: Legal Standards Governing Identification of Alluvial Valley Floors

Dear Director Baza:

On behalf of Alton Coal Development, LLC, enclosed is our legal analysis of the legal standards governing the identification of alluvial valley floors. We understand that the Division is in the process of determining whether or not an AVF exists in the Sink Valley involving both geologic and hydrologic criteria. If either of these criteria cannot be met, an AVF is not present.

We appreciate your consideration of our analysis.

Very truly yours,

Denise A. Dragoo

DAD:jmc
Enclosure
cc: Chris McCourt (via e-mail, without enclosure)
Bob Nead (via e-mail, without enclosure)
Jim Wayland (via e-mail, without enclosure)
Dana Dean, with enclosure
Steve Alder, Esq., with enclosure

Snell & Wilmer
L.L.P.

OFFICE MEMORANDUM

TO: Chris McCourt, Alton Coal Development, LLC ("**Alton Coal**")

FROM: Denise Dragoo, Esq., and Jim Allen, Esq.

DATE: July 2, 2009

RE: ***Legal Standards Governing Identification of Alluvial Valley Floors***

Pursuant to your request, we have reviewed the Utah Division of Oil, Gas and Mining's (the "**Division's**") technical analysis of the Coal Hollow Mine Permit application ("**TA**") regarding their pending determination as to whether or not an alluvial valley floor ("**AVF**") occurs within Sink Valley. This memorandum considers the legal authority relevant to determining whether an AVF exists and confirms that the Division has clear authority, based on the geology of Sink Valley, to determine that there is no AVF.

I. THE REGULATORY PROCESS FOR DETERMINING WHETHER AN AVF IS PRESENT

The statutory basis for regulation of mining on alluvial valley floors is found in the Division's permit approval criteria and in the definition of "AVF." Subject to certain exceptions, the Division can approve a permit only if the proposed mining will not "interrupt, discontinue, or preclude farming on alluvial valley floors that are irrigated or naturally subirrigated." Utah Code § 40-10-11 (LexisNexis 2008). The Utah Coal Mining and Reclamation Act defines "alluvial valley floor" to include "the unconsolidated stream laid deposits holding streams where water availability is sufficient for subirrigation or flood irrigation agricultural activities . . . ." *Id.* at § 40-10-3(2). The language of the Utah Act is identical to the federal Surface Mining Control and Reclamation Act ("**SMCRA**"), 30 U.S.C. § 1260(b)(5); 30 U.S.C. § 1291(1). Under state and federal law, the definition of AVF excludes "upland areas which are generally overlain by a thin layer of colluvial deposits composed chiefly of debris from sheet erosion, deposits by unconcentrated runoff or slope wash, together with talus, other mass movement accumulation and windblown deposits." *Id.*

The Utah Rules require that before conducting operations "in a valley holding a stream or in a location where the adjacent area includes any stream" the applicant must either affirmatively show the presence of an AVF or submit the results of a field investigation sufficient to allow the Division to determine whether or not an AVF is present. Utah Admin. Code R645-302-321.100. The Division identifies the area to be covered by the field investigation "after consultation with the applicant." *Id.* The field investigation includes mapping, documentation, and analysis as set forth in Rules 645-302-321.210 through 260. Based on this investigation, the Division will make

an AVF determination. R645-302-321.300. Alton Coal submitted its AVF field investigation in response to two Administrative Completeness Reviews and a technical analysis by the Division. This information confirms that Sink Valley does not meet the AVF criteria. In addition, Alton Coal's expert hydrogeologist, Erik Petersen, P.G., recently provided the Division with an explanation of the fundamental AVF definition, and a clarification of the geologic criteria necessary for an AVF determination under the Utah Coal Program (the "**Petersen Analysis**").[1]

The Division must now make an AVF determination which addresses: (1) the extent of any AVF within the area investigated; and (2) whether any stream in the area may be excluded from further consideration as lying within an AVF. R645-302-321.300. The Division can find that an AVF exists only if two conditions are met:

1. Unconsolidated stream-laid deposits holding streams are present; and

2. There is sufficient water to support agricultural activities.

R645-302-321.320–321.321. These criteria are understood to provide separate geologic or geomorphic and agricultural or hydrologic criteria for identifying an AVF. The criteria are clearly set forth in the conjunctive, requiring both to be present for the Division to identify an AVF within the Sink Valley area.

II. GEOLOGIC CRITERIA FOR SINK VALLEY DO NOT SUPPORT THE EXISTENCE OF AN AVF

On behalf of Alton Coal, Erik Petersen has carefully reviewed the geologic regulatory criteria for an AVF determination in light of OSM's 1983 Guidance on AVF Determinations ("**OSM Guidelines**"). Petersen Analysis, Exhibit 4, at 2.[2] Because the OSM rules (and SMCRA) use identical AVF criteria as the Utah Rules (and Utah Coal Act), the OSM Guidelines are persuasive authority.

Under the OSM Guidelines, flood plains and terraces underlain by alluvial deposits, together with adjacent side slopes composed of alluvial material, may be identified as potential AVF lands when they lie within a topographic valley containing a continuous perennial, intermittent, or ephemeral stream. *Id.* OSM Guidelines at p. II-7. The two necessary elements are: (i) a continuous stream; and (ii) flood plain/terrace landforms underlain by alluvium. *Id.* Side slopes within a topographic valley are only potential AVF's if they are adjacent to eligible flood plain/terrace terrain and if they are underlain by alluvium. *Id.* If either the flood plain/terrace complex or side slopes are composed of colluvial deposits,[3] no AVF is present. If

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[1] Mr. Petersen's explanation of the AVF definition is attached as Exhibit 4 and his clarification of the geologic criteria for AVF determination is attached as Exhibit 5.

[2] OSM, Alluvial Valley Floor Identification and Study Guidelines (August, 1983.)

[3] Alluvial deposits are silt, sand, gravel, or cobbles that owe their presence to the action of a flowing watercourse. Alluvial deposits are characterized by some degree of sorting according to particle size. Colluvial deposits owe their presence at a given location to mass land movement such as landslides. No sorting is usually observed with colluvial deposits.

either a continuous stream or flood plain/terrace landform is absent, no AVF can be found regardless of the presence of alluvial side slopes. *Id.*

As reconfirmed in the recent Petersen Analysis, the Sink Valley area does not contain a flood plain and terrace complex and cannot be an AVF under the Division's rules or the OSM Guidelines. Petersen Analysis, Exhibit 5, at 2. The Division has acknowledged in a March 30, 2009 Technical Memorandum that there is no flood plain and terrace complex in Sink Valley, stating: ***"the sedimentary structure of Sink Valley consists of colluvium and alluvial fans deposited by unconcentrated runoff and there is no flood plain and terrace complex."*** Technical Memorandum at p. 10 (emphasis added.)

The analysis set forth in the Division's Findings for the March 26, 2009 TA also confirm that the geology of the Sink Valley does not support an AVF, stating:

> On October 1 and 2, 2008, Division personnel examined the area for AVF characteristics. They determined that upper Sink Valley Wash, where the mine is proposed, **consists of alluvial fan deposits, with no flood plain or terrace complex.** There was no consensus as to whether or not there is a continuous channel, even when the impacts of human modifications are accounted for. Although some characteristics of an AVF are present, (*see* definitions for both "Alluvial Valley Floor" and "Upland Areas" in R645-100-200, i.e., unconsolidated stream-laid deposits and agricultural activity support by irrigation and subirrigation), **not all characteristics listed in the definitions in the Coal Mining Rules are clearly present, i.e, stream-laid deposits holding streams with water availability sufficient for irrigation or subirrigation activities."**

(TA at p. 33, emphasis added.) These Findings by the Division confirm that the geology of the Sink Valley does not support an AVF.[4]

III. CONCLUSION

In sum, Alton Coal has submitted field studies and the Division has made preliminary findings which support the conclusion that the Sink Valley fails to meet the geologic criteria necessary for determining an AVF within or adjacent to the Coal Hollow Mine permit area. Specifically, the Division has concluded that there is no flood plain and terrace complex necessary to satisfy the AVF geologic criteria set forth at R645-302-321.310. The Division does not need to address AVF hydrologic criteria since it has already determined that the geologic criteria have not been met. Therefore, consistent with its geologic findings, the Division should

[4] The Division's permit deficiency list dated March 26, 2009, makes the unsupported statement that the area of stream channel in Sink Valley, below Swapp Hollow, and outside the Coal Hollow Mine permit area, may meet the AVF criteria, but the Division has not documented this statement and it is inconsistent with the Division's Findings. *Compare* deficiency list at p.47 with Findings at p. 33.

enter a determination that there is no AVF within Sink Valley and proceed with analysis of the Coal Hollow Mine Permit Application without requiring further field studies regarding the hydrologic impact to an AVF.

Exhibit 4

Fundamental AVF Definition

By

Erik Petersen, P.G.

Fundamental AVF Definition

While honest differences of opinion regarding some specific aspects of the AVF determination process are not unexpected, the fundamental definition of an alluvial valley floor, whether as defined in the Utah 645-302 Rules, or as outlined in the AVF identification guidelines provided by U. S. Office of Surface Mining (1983), is **NOT** ambiguous.

The Utah coal mining rules clearly state that **both** of the two fundamental characteristics of alluvial valley floors (geologic characteristics and agricultural water characteristics) must be present in order for the Division to make a positive determination of an alluvial valley floor. Rule R645-302-321 indicates (emphasis added):

> 321.300
> Based on the investigations conducted under R645-302-321.200, the Division will make a determination of the extent of any alluvial valley floors within the study area and whether any stream in the study area may be excluded from further consideration as lying within an alluvial valley floor.
>
> The Division will determine that an alluvial valley floor exists if it finds that:
>
> > 321.310. ***Unconsolidated streamlaid deposits holding streams*** are present; **and**,
> >
> > 321.320. ***There is sufficient water to support agricultural activities*** as evidenced by...
> >
> > | | |
> > |---|---|
> > | 321.321. | The existence of flood irrigation in the area in question or its historical use; |
> > | 321.322. | The capability of an area to be flood irrigated, based on streamflow water yield, soils, water quality, and topography; or, |
> > | 321.323. | Subirrigation of the lands in question, derived from the groundwater system of the valley floor. |

This definition clearly indicates that both the geologic and agricultural water use characteristics of a stream valley must be present in order for the Division to make a positive alluvial valley floor finding. There is no provision in the regulations to justify the arbitrary exclusion of the first requirement (321.310; geologic characteristics) under the R645-302 rules.

Any thoughtful reader of these regulations would of necessity conclude that a region not meeting the specified geologic criteria cannot be designated as an alluvial valley floor, regardless of the presence or absence of the agricultural water use criteria also outlined.

This same concept is explicitly laid out in the 1983 U.S. Department of the Interior, Office of Surface Mining Reclamation and Enforcement (OSM), Alluvial Valley Floor Identification and Study Guidelines.

The OSM guidelines reference the Flannery decision (1980) which sheds light on several aspects of the alluvial valley floor regulatory program. The court sustained the OSM interpretation that alluvial valley floors may be found along perennial, intermittent, or ephemeral stream. The court noted:

> "An alluvial valley floor must satisfy geologic criteria (unconsolidated stream-laid deposits meeting the regulation's dimensions) and hydrologic criteria (water sufficient to sustain agriculture)."

Additionally, using unambiguous language, the OSM guidelines reference the statutory definition of an alluvial valley floor as expanded and clarified through regulations, judicial review, and administrative decisions. The geologic criteria defined in the statutory definition are as follows:

> The geologic criteria of an alluvial valley floor are considered to be:
>
> (a) A topographic valley with a continuous perennial, intermittent, or ephemeral stream channel running through it; and
>
> (b) Within that valley, those surface landforms that are either flood plains or terraces if these landforms are underlain by unconsolidated deposits; and
>
> (c) Within that valley, those side-slope areas that can reasonably shown to be underlain by alluvium and which are adjacent to flood plain or terrace landform areas.

(Note the "and" language in the above presented geologic criteria definitions)

The OSM further notes that an alluvial valley floor is determined to exist only when the both of the following two criteria are met: 1. Geologic Criteria, and 2) Water Availability Criteria (see page II-11 in 1983 OSM document).

This definition clearly states that specific geologic criteria must be met, in addition to the agricultural water use criteria, in order for a region to be determined to be an alluvial valley floor (see pages II-7 to II-11 in the 1983 OSM guidelines).

It is difficult to imagine more straightforward language than that in the Utah R645 rules and the OSM AVF identification guidelines regarding the required presence of both geologic and agricultural water use criteria for a positive AVF determination to be made. It is becoming increasingly difficult to understand why there apparently remains confusion with Division personnel regarding these most fundamental aspects of the alluvial valley floor identification process.

Exhibit 5

Clarification of Geologic Criteria for AVF Determination

By

Erik Petersen, P.G.

Clarification of Geologic Regulatory Criteria for AVF Determination

The Utah Rule R645-302-321.300 indicates that the division will make a positive alluvial valley floor finding if "Unconsolidated streamlaid deposits holding streams are present; and (321.310) ..." the other specified criteria are present in the valley as outlined. In other words, the geologic criterion (the presence of unconsolidated streamlaid sediments in a valley holding streams) is a prerequisite for a positive AVF determination. R645-302-321 goes on to indicate that upland areas...composed chiefly of debris from sheet erosion, deposits formed by unconcentrated runoff...or other mass movement accumulations are specifically excluded from the alluvial valley floor definition in the rules. As defined in R645-100, the term upland areas means "those geomorphic features located outside the floodplain and terrace complex, such as isolated higher terraces, alluvial fans..." This clearly indicates that upland valleys composed of alluvial fans cannot be alluvial valley floors, and further, that upland areas outside the flood plain and terrace complex (such as the Sink Valley area which does not contain a flood plain and terrace complex) cannot be an alluvial valley floor according the Utah State R645 rules.

The 1983 OSM guidelines note that "Although 'alluvial valley floor' has a technical meaning, particularly to a geologist, in the context of the Surface Mining Control and Reclamation Act (SMCRA), the term has a regulatory meaning. Failure to understand that 'alluvial valley floor' is a regulatory term, defined in statute and clarified in legislative, court decisions, regulations, and ongoing administrative decisions, can result in incomplete or misdirected studies." (See OSM pages II-4-5).

The 1983 OSM alluvial valley floor identification guidelines present the expanded and clarified statutory definition of an alluvial valley floor. This statutory definition is based on regulations, judicial review, and administrative decisions. The statutory geologic criteria that must be present for an area to be an alluvial valley floor are listed on pages II-7 and II-8 of the 1983 OSM guidelines document. The geologic criteria are as follows:

"A. Geology. As already noted, one of the two fundamental aspects of an alluvial valley floor is its geologic character. Regulations, judicial review, and administrative decisions have expanded and clarified the statutory definition. The geologic criteria of an alluvial valley floor are understood to be [emphasis added]:

> "(a) A topographic valley with a continuous perennial, intermittent, or ephemeral stream channel running through it; **and**;
>
> "(b) within that valley, those surface landforms that are either flood plains or terraces if these landforms are underlain by unconsolidated deposits; **and**
>
> "(c) within that valley, those side-slope areas that can reasonably be shown to be underlain by alluvium and which are adjacent to flood plain or terrace areas."

It is clearly evident from these definitions (both the Utah R645 rules and the OSM guidelines) that if there is no flood plain and terrace complex in a topographic valley,

there likewise is no alluvial valley floor in that valley, regardless of the presence or lack of the required agricultural water use characteristics of that valley (i.e., the geologic criteria must be met for the valley to qualify as an alluvial valley floor).

Given these considerations, and the Division's acknowledgement that there is no flood plain and terrace complex in Sink Valley (see March 30, 2009 Technical Memo, Page 10), a negative determination regarding the presence of AVF seems straightforward.

In this TA and in previous correspondences with the Division, considerable emphasis has been placed on information presented in the 1980 Jack Schmidt Earth Resources Consulting report prepared for the U.S. Office of Surface Mining (OSM) entitled *Reconnaissance Determination of alluvial Valley Floor Status and Assessment of Sediment Yield in Selected Areas of the Alton Petition Area and Adjoining Lands Garfield ands Kane Counties, Utah.* Information from this report was also summarized in an appendix to the 1983 OSM document *Alluvial Valley Floor Identification and Study Guidelines.* A discussion of these documents is presented here to clarify the information contained as it relates to the current status of the alluvial valley floor determination in the Coal Hollow Project area.

In Mr. Schmidt's cover letter to Mr. Paul Bodenberger of the Office of Surface Mining, he clearly indicates that his study is a reconnaissance determination of alluvial valley floor status. The introduction to the report indicates that Mr. Schmidt spent a total of 14 days conducting necessary field work and collecting information from local federal agency offices, and that the nature of Schmidt's work should be considered reconnaissance. The project area (the Alton petition and adjacent areas) as shown on Figure D-3 in the 1983 OSM document encompasses more than 1,000 square miles. Mr. Schmidt was commissioned not only to conduct a regional reconnaissance AVF investigation, but also to make an evaluation of the nature of agricultural use of water, make an evaluation of the erosion and sediment yield characteristics in proposed mining areas, and make an evaluation of the effect of erosion and sediment yield on downstream channels and associated stream diversions. Under these conditions, clearly Mr. Schmidt could not possibly be expected to perform all of these tasks and to perform a field investigation of the geologic and agricultural water use conditions in Sink Valley in anything approaching the kind of detail required to make a formal AVF determination. Consequently, the report is appropriately presented as a reconnaissance determination.

As indicated on page II-12 of the 1983 OSM guidelines, "The purpose of an initial identification phase is to permit identification of areas which clearly are not alluvial valley floors, so that detailed studies can be focused only on areas which might reasonably be expected to be alluvial valleys. The other purpose of initial studies is to permit a level of identification on the basis of readily available or easily collected data." Appendix D of the 1983 OSM alluvial valley floor identification and study guidelines is an appendix that uses the findings of a 1980 reconnaissance alluvial valley floor study of the Alton unsuitability petition area as an example to illustrate the procedure for performing initial alluvial valley floor identification studies in coal mining areas.

On page 29 of the Divisions Technical Analysis document (26 March 2009), the Division appears to be referring to a statement from Page D-4, Appendix D of the 1983 OSM document. The statement reads:

> "Valleys have been developed because of favorable soils and proximity to water. Agriculture in the region could not exist in its present form without the valleys; therefore, alluvial valleys do exist in the region"

This is a statement from the "*Regional Setting"* subsection of the OSM report that is presented even before the beginning of the discussion of the identification process. This broad statement is clearly being applied to the entire "region" described in the report, which extends from near Bryce Canyon National Park to the Arizona state line and encompasses nearly 2,000 square miles.

No one would dispute that alluvial valley floors exist in this large region. However, the Division then goes on to conclude that:

"OSM stated that the initial reconnaissance conducted of the Alton area by Jack Schmidt in 1980 was sufficient to confirm the existence of an alluvial valley floor based on the importance of the valley land to agriculture (pg. D-4) but suggested that an applicant for a mine permit might collect additional data to clarify the regional hydrologic pattern (page D-2)".

This statement is completely unfounded and does not even approach what is stated in the complete text of the Schmidt report or the OSM summary in Appendix D of the 1983 document. As stated previously, there appears to be some confusion on the part of Division personnel about the requirements for "confirming" the existence of an alluvial valley floor – namely that both geological and agricultural water use criteria be met.

Mr. Schmidt notes on page D-6 that geologic criteria were indeed used as evaluation criteria in his 1980 alluvial valley floor reconnaissance investigation. Mr. Schmidt indicates that, in his opinion, all of the valleys in the nearly 2,000 square mile study area, both developed and undeveloped, met the requisite geologic criteria. Thus, in accordance with the stated primary purposes of a reconnaissance investigation – namely to identify those areas that clearly are not alluvial valley floors – the application of geologic criteria to his evaluation of the valleys would not further refine his preliminary reconnaissance delineation of alluvial valley floors in the region. Quoting page D-6 (emphasis added):

> "The geologic criteria of an alluvial valley floor was not a sufficient basis on which to make determinations, because all valleys, both developed and undeveloped, met those criteria."

It is entirely incorrect to infer that Mr. Schmidt or OSM deemed it appropriate to confirm the presence of alluvial valley floors based on agricultural water use criteria alone in the absence of the geologic criteria.

Given the nearly 2,000 square mile size of the study area in the Schmidt report and the 14-day field investigation, it was perhaps a reasonable starting assumption for a reconnaissance-level regional study to assume that all stream valleys met the SMCRA geologic requirements. To adequately investigate the near-surface sediments in an area of that size would involve enormous expenditures of time and resources and such was beyond the scope of his investigation. Generally, it is for this reason that reconnaissance-level alluvial valley floor studies are typically performed with readily available or existing data only (see Chapter II of the 1980 OSM guidelines document). However, numerous detailed investigations of the geologic, hydrogeologic, and geomorphologic conditions in the Sink Valley area have been performed since the publication of the 1980 Schmidt report. The results of these investigations clearly indicate that the geologic conditions as described in the Utah State R645 rules and the OSM statutory definitions, are not present in the Sink Valley area.

Further, as Mr. Schmidt notes on page 43 of the complete 1980 report:

> "Reconnaissance identification procedures are intended to distinguish between those areas clearly not alluvial valley floors and those areas where detailed study might show that areas would be formally designated as alluvial valley floors. Reconnaissance identification is thus intended to highlight those areas where detailed study is necessary" (emphasis added).

In the legend for Figure D-3, it is noted that the areas marked on the map are "reconnaissance alluvial valley floor determinations" and that "areas generalized and not intended for use in mine permit application studies".

Again, because of the enormity of the task of evaluating hundreds to thousands of square miles of terrain, some broad generalizations were incorporated by Mr. Schmidt in delineating preliminary alluvial valley floor identification areas. Among these (in addition to the assumption that all valleys met the geologic criteria) are the following (see pages 47-50 of the 1980 Schmidt report):

- "Where subirrigation is known, or where basin characteristics are similar to known subirrigation areas, preliminary determinations of alluvial valley floor status have been made.

- "Alluvial valley floors were identified in all valleys with existing stream diversion irrigation, and in all valleys whose basin lithology included the Claron or Kaiparowits Formation.

- "Uncertainty exists regarding designations in losing stream reaches where there are no diversions. For example, Sink Valley Wash below Sink Valley has ephemeral streamflow and diversions. Kanab Creek has no diversions from Lamb diversion to that of the Kanab Irrigation Company, a distance of 24 miles... For the purposes of preliminary determination, each of these valleys has been designated an alluvial valley floor."